

## STORMS AND WEATHER WARNINGS

## WASHINGTON FORECAST DISTRICT

The month as a whole was a very quiet one so far as storm warnings were concerned. Only two were issued, namely, on the 17th from Delaware Breakwater to Eastport and on the 25th from Sandy Hook to Boston. Small-craft warnings were ordered on the 23d and advices disseminated by radio on the 24th for strong winds off the middle and north Atlantic coast.

Frost warnings were ordered on the following dates: 1st, 2d, 5th, 7th, 8th, 11th, 12th, 14th, 15th, 17th, 18th, 25th, and 26th, mostly for the lower Lake region and interior of the Middle Atlantic States. Frosts occurred in substantial agreement with the warnings.

Numerous records for low and also for high temperature for the season were broken. These are referred to in greater detail under "The weather elements" (pp. 232-233).—*R. H. Weightman.*

## CHICAGO FORECAST DISTRICT

The month, as a whole, was unusually dry throughout the forecast district, and the temperature was below normal from the eastern limits of the district westward to the central portion of the Plains States. In the middle Rocky Mountain region it was considerably above the seasonal normal. The drought was really the most important meteorological factor during the month.

At the beginning of the month the weather was rather cool with frosts over most of the forecast district, and warnings for additional frosts were issued on the morning of the 1st from the upper Mississippi Valley eastward, and these were generally verified.

On the morning of the 3d a cold, high area of considerable magnitude appeared in British Columbia, and this gradually pushed eastward and southeastward during the next five days, accompanied by general frosts, for which warnings were issued well in advance.

Another such area, but of less importance, first came to view in the Canadian Northwest on the morning of the 9th, and this took a southeasterly direction, finally reaching the central valleys on the 11th and 12th. Frosts also accompanied the movement of this high, and warnings were issued in anticipation of their occurrence. Another high-pressure area immediately followed, appearing first in Manitoba on the 13th and crossing the Great Lakes region on the 14th and 15th, with some frosts in that area, the usual warnings being given; and so with still another high which crossed the upper Mississippi Valley and the Great Lakes on the 17th and 18th.

The principal atmospheric disturbance of the month appeared in the Plateau region on the 20th. It first took a northeasterly course to Manitoba and then southeasterly across the upper Mississippi Valley, southern Lake region and Ohio Valley, and was succeeded by a cold, high area of great magnitude. The temperature rose rapidly in front of the disturbance, and maxima far above 90° were reached generally throughout central districts on the 22d. With the movement southeastward of the low forced rapidly by the northern high, a decided break occurred generally throughout middle districts on the 23d and 24th, with strong northerly winds, reaching gale force at several places. The temperature within the brief period of 24 hours, after having reached record-breaking high marks for so early in the season, fell to record-breaking minima for so late in the season

The attendant frosts were quite general and "heavy" to "killing" in localities, resulting in great damage to crops, tender vegetation, and fruit. Warnings of frost had been issued to the entire area, as well as warnings of storm winds on the Great Lakes. Other warnings, chiefly small craft, were issued for the Great Lakes during the month, but as a rule the storms were not of much importance.

The usual special frost warnings were sent to the cranberry marshes of Wisconsin with, doubtless, beneficial results.

Special 3-day forecasts were furnished daily to the fruit interests of southwestern lower Michigan and to Door County, Wis., in connection with spraying operations, etc.

Fire-weather warnings were continued during the month to the State forester at St. Paul, Minn., who in a letter to this office dated June 8 expresses his appreciation of the special forecasts, as follows:

The forecasts have been a wonderful assistance to us during the spring season. The information was distributed by wire to all our rangers daily when conditions looked unfavorable. We appreciate very much the assistance you have given us by sending these forecasts, and this opportunity is taken to express our greatest thanks.

In connection with the military tournament held in Chicago in the Grant Park Stadium on May 22, 23, and 24, it was planned by the Army to bring a large dirigible balloon from Scott Field, but, upon the advice of the forecaster that squally and stormy conditions were impending, the trip was abandoned. The officer in charge expressed personally his appreciation of the service.—*H. J. Cox.*

## NEW ORLEANS FORECAST DISTRICT

Frost warnings were issued for the northern portion of the district on the 1st, 4th, and 25th, and frost occurred in some localities on the dates following in each instance. No storm warnings were issued during the month except that small-craft warnings were displayed at Corpus Christi on the 25th. No general storm occurred on the West Gulf coast.—*I. M. Cline.*

## DENVER FORECAST DISTRICT

Although low pressures persisted over the Southern Plateau sections and Arizona during nearly all of the month, there was a continued deficiency in precipitation in about all of the district except New Mexico. Temperatures were generally considerably above normal. A showery period began in Colorado and New Mexico on the 5th and continued until the 11th. Showers also fell in Colorado and Utah on the 15th and 16th, in the northern and eastern portions of the district on the 20th and 21st, in eastern Colorado on the 25th, in Colorado and New Mexico from the 26th to the 31st, and in Utah on the last-named date. The amounts, however, were generally light. Highs of considerable intensity prevailed on the northeastern Rocky Mountain slope and in the upper Missouri Valley from the 3d to the 10th, with freezing weather in extreme northeastern Colorado on the mornings of the 4th, 5th, and 9th. Temperatures below freezing in most of northeastern Colorado on the morning of the 1st attended a high that was advancing across the Missouri Valley.

Frost warnings, which were generally justified, were issued as follows: 4th, heavy frost eastern, freezing temperature northeastern Colorado; 5th, frost northeastern

Colorado; 12th, frost western valleys of Colorado and extreme north-central and extreme northwestern New Mexico; 14th, frost southwestern Colorado valleys, extreme northwestern New Mexico and extreme southern Utah; 22d, frost extreme southwestern Colorado, extreme northwestern New Mexico, and northeastern Arizona.

The following fire-weather warnings were issued: 7th, strong shifting winds in New Mexico, Arizona, and Utah; occasional showers probable in New Mexico, northeastern Arizona, and southeastern Arizona; 31st, strong southwest winds indicated in northern and eastern Arizona, New Mexico, and southern Utah; local showers probable in Utah. The conditions that followed justified the issue of the warnings.—*J. M. Sherier.*

#### SAN FRANCISCO FORECAST DISTRICT

The feature of prominence as disclosed by the daily weather charts was the presence, rare for the month of May, of well-defined cyclonic areas on two occasions over the ocean off the California coast. The first of these apparently formed off the coast preceding the 10th and caused rains in California from the 10th to 13th and another formed off the coast on the 14th and 15th and caused general rains over the same State from the 16th to the 20th. The rains were detrimental to some of the fruits and to newly-mown hay; otherwise they were beneficial. In the aggregate the benefit from the rains more than offset the damage done. Forecasts of their occurrence were accurate as to time and place. The precipitation in the San Francisco Bay region was unusually heavy and brought the catch of rainfall for the season well above the normal and produced at San Francisco the heaviest May rainfall since the record began in 1849. It is not possible to say whether the cyclonic areas actually formed off the coast or whether they moved southeastward from the Gulf of Alaska. The Pacific high on these two occasions was displaced far to the westward of its normal position, being centered north of the Hawaiian Islands, and this may have permitted both storms to advance southeastward along the eastern and northeastern periphery of the anticyclone.

No storms accompanied by winds of exceptional force occurred along the coast until the night of the 27th, when south winds of gale force were reported from the Washington-Oregon coast. Storm warnings were displayed at northern ports on the morning of the 27th.

As typifying the requests for meteorological information that come to a district forecast center, the following is an example. In the Imperial Valley large quantities of cantaloupes are raised for shipment, largely to eastern markets. The output this year, it is stated, will reach 15,000 carloads. On the 14th of May the following telegram was received:

ELCENTRO (IMPERIAL VALLEY), CALIF.,  
May 14, 1925.

OBSERVER, U. S. WEATHER BUREAU,  
San Francisco, Calif.

Recent high humidity with fairly warm temperatures has resulted in serious outbreak of mildew on cantaloupe vines. Unless

low humidity or temperatures exceeding 100° occur in next two days growers will have to spray. Growers anxious to know whether you forecast low or high humidity or very hot weather for Imperial Valley in next two or three days. Wire reply.

(Signed) E. GARTHWAITE.

The following telegram was sent in reply:

Neither very high temperatures nor very low humidity indicated next two or three days. Advise spraying.

BOWIE.

Conditions that followed were favorable to the spread of mildew.

There were no frosts of consequence during the month, except in the more northern part of this forecast district. The fruit belts of Washington and Oregon were kept advised from day to day as to what to expect in the way of low temperatures with reference to the firing of orchards.

No general fire-weather warnings were issued during the month, although on several occasions when low humidity was expected advices to exercise caution in slash burning were issued for Washington and Oregon.—*E. H. Bowie.*

#### RIVERS AND FLOODS

By H. C. FRANKENFIELD

Excepting that in the Rio Grande of Texas, no floods of consequence occurred during May, 1925. The rise continuing from late April in the Sulphur River was attended by comparatively small crop losses and a saving, through Weather Bureau warnings, of property valued at about \$10,000; while in the Trinity River flood no movable property was reported lost and the saving of property through the warnings was estimated at \$22,500. Prediction of both floods was timely and accurate.

In the more severe rise in the Rio Grande, which resulted from excessive rains over southwest Texas on May 27, 28, and 29, flood stage was passed at all gaging stations on the river, six lives were reported by newspapers to have been lost, bridges were washed out, levees broken, houses destroyed, livestock drowned, and crops ruined. Total reported losses were as follows: Bridges and tangible property, \$30,000; livestock, \$15,000; growing crops, \$20,000. No estimate has been received of the value of property saved through Weather Bureau warnings, but these were accurate and issued well in advance of the flood and are known to have resulted in a large saving of movable property and livestock.

The spring rise in the Colorado River passed off without reported damage, flood stage occurring at only two stations.

The spring rise of the Columbia River was still in progress at the close of the month. Report thereon will be made in the MONTHLY WEATHER REVIEW for June, 1925.

Rivers of the Mississippi system were unusually low for the time of year, but as this condition continued during the succeeding month more detailed mention thereof will be deferred until the June report.